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RE-DESIGNING
THE SMART FUTURE
How new technologies are transforming businesses and the world we live in
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Dedicated to my father

Dedicated to my father, Professor Venícius Telles, who inspired my passion for writing since my childhood with his private lessons, and later developed with the advertising writing classes, still in the early 1990s.

The understanding of processes, products and services efficiency called "smart" came with the iCities, a company that I founded with my friend Roberto Marcelino in 2011, in which we later had the grateful addition of two more innovative partners, Caio Castro and Eduardo Marques. Today, we are a reference regarding the topic of Intelligent Cities in Brazil, providing consultancy, developing projects and solutions, and the biggest events on the subject in the country.

I owe my daily inspiration to my dear daughter Melanie Telles, a partner in these moments of dedication since my first book.

Tracking themes related to innovation and writing on the subject brought me up to this fifth book, an opportunity for which I thank God.

André Telles

SUMMARY

INTRODUCTION

The future has always fascinated man. Even before the awakening of civilization as we know it, shamans and tribal leaders performed sorcery, rites and spiritual practices in which they sought clues and answers about the future. At that time, they wanted to know more about climatic conditions, the supply of natural resources, and the propensity for success in places where they settled down.

But the fact is, man has always thought about the future.

This condition is perhaps what really separates us from animals and other beings. They also think about the future, but as species – we do it as individuals. We want to improve our lives and enhance our own knowledge in the generation we live in, not just in order to ensure the survival of the generations to come.

Man looks to the future to thus seek success in the present.

This is something that has not changed... until the turn of the last millennium. Never, in all the history of mankind, has the future been so confused with the present. However, before we turn to the way in which new technologies and future perspectives affect today's society, it is perhaps best to go through the exercise of looking ahead to other times of the contemporary world.

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The beginning of the twentieth century was one of the most interesting periods of modern society. European and North American scientists (and even Asians, although we do not know much about their history in the West) left their garages and poorly lit laboratories to conquer the world.

Nikola Tesla, Alexander Graham Bell, Alfred Nobel, Thomas Edison, Louis Pasteur... hundreds of their inventions,

although accompanied by thousands of unsuccessful experiments, drew the outline of the entire twentieth-century society.

Appliances, automobiles and motor vehicles, telecommunication systems, vaccines and modern medical treatments and warlike artifacts are just a few notable items. A small group of perhaps a few dozen people has completely modified the future for at least a century.

Unfortunately, for most of them, concrete results of their inventions and experiments have only occurred generations after their deaths. For example, wireless transmission concepts idealized by Tesla would only become viable almost 100 years after the period in which he lived.

Pasteur succeeded in life, but his real impact on medicine would only be felt decades after his death – and mankind would still face dozens of epidemics that would take millions of lives.

Graham Bell watched a few monarchs and millionaires use his invention as a cute curiosity, but he would have to have lived another hundred years to get to know the cell phone.

Alfred Nobel has given the name, up to this date, to the most acclaimed award to the world scientific community, but he may have been depressed when he saw the results from the invention of dynamite.

In the period between the nineteenth and twentieth centuries, this select group of people saw possibilities that were dozens or even hundreds of years ahead of them. However, technology, resources, and the disposition of society in their time did not enable them to establish in a present form that, which in their minds, seemed completely viable.

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The two world wars have created the mistaken impression that conflict is the only way to create and promote scientific and technological advancement. It is true that both wars, as well as

the period between them, have opened up a volume of financial and material resources never previously seen in the scientific community.

Any visionary in the first half of the twentieth century had clear possibilities for almost inexhaustible funding for his studies and research. Hundreds of geniuses who saw the future in a different way could, under this circumstance, put into practice their experiments and bring some concepts to reality that seemed completely impracticable.

A grim view of the future

The interwar period, from the 1920s to the 1940s, was characterized by a fragmented society in the Western world. The woes of World War I added to the global financial crisis and to the rise of right and left totalitarian regimes across the globe.

In spite of the technological advances that took place between the end of the nineteenth century and the beginning of the twentieth century, society saw a dark future, marked by the automatization of the human being and even its enslavement – whether by machines, aliens or even radical and despotic leaders.

In this context, innovations and advances were seen as a direct attempt at domination – only instruments to create power and relegate the "common human being" to the loss of individuality and identity.

The novel *Brave New World* is a clear example of this expectation. Aldous Huxley creates, in the work, a futuristic and dystopian society in which human reproduction is automated and genetically controlled at the technological level, and conventional reproduction is seen as a heresy, such as beliefs and religions.

The book *1984*, although post-World War II follows a similar line, but in an even more somber way as a result of technological advance as a form of control. The work shows a dystopian society in which members are uninterruptedly watched and supervised by a force that extends ruling class power

to the private and daily life of all through the "Big Brother" – who could be interpreted as a despotic power mix and artificial intelligence.

The cinema also yielded to the apocalyptic vision of the future. Films such as *Metropolis* from 1927 already showed the form how the futuristic expectation was to subjugate society to the desires of a ruling class that congregated all the financial and political power, guiding technological evolution to the application and maintenance of power. Already in 1927 concepts such as artificial intelligence and simulacra were discussed and considered, but in the sense of perpetuating oligarchies at the top of society, never of their direct benefit.

The examples go further, but the fact is that, during the first half of the last century, innovation was certainly viewed with distrust of society. The application of new concepts was not only in doubt but in each person's deepest fears.

Technology would continue to advance, however, because of military and industrial projects mainly linked to the polarization of world politics. Its migration to society, although today it is seen as having been a "deprivation" on the part of rulers, has in fact become difficult and encountered barriers in the popular imaginary itself.

Computers took three decades to gain confidence and play a role in the life of the common man, and even television was received with reservations in its early years in the market. The slow popularization prevented the gain of scale and, consequently, delayed the spread of technologies that were still dominated during World War II, but would come to our homes many decades later.

Humankind has become better acquainted with subatomic particles, has created more and more efficient ways of flying and communication tools that shorten periods of weeks to a few minutes.

But the vision, at least as far as the leaders of the day and even society were concerned, was somewhat limited. The great discoveries seemed to open the hazy scene in the future of wars

and conflicts – but few really saw what could be beyond a victory or conquest.

The scientific spoils of World War II would create a myriad of advances in the 1950s and 1960s. However, with the futuristic view of the final conflict – what we would know later as the Cold War – such unbelievable advances were "strategically" kept at seven keys.

We have been to the moon and in space on several occasions.

We created computers that could process information millions of times faster than the shrewdest humans. These computers, however, were often seen by society as a threat, something reserved for large government agencies and secret oligarchic groups with lewd and megalomaniacal purposes. The arts, too, reflected our fear of an uncertain future, in which machines and despots walked together, or in which machines simply became the enemy.

Divided opinions

The 1960s and 1970s brought new concepts and created new lines of thought in society. Social gains have involved women, ethnic groups and young people more proactively in society and culture.

A breakup began to occur in our view of the future: on one side, machines and superstructures remained a source of power. However, others were beginning to see a future in which technology could indeed be at the service of man and society.

The true concept of "artificial intelligence" has become more complex. Intelligent machines – using their reason in an altruistic or destructive form.

Although movies like A Clockwork Orange still saw the despotic and dystopian future of the dominant spheres directing society, the technological advancement was now seen slightly differently. In 2001, A Space Odyssey, HAL 9000 computer is an artificial intelligence responsible for the entire operation and maintenance of a spacecraft mission through the Solar System.

Some sources claim that the name HAL derives from IBM. In fact, each letter in H-A-L is exactly one before each letter in I-B-M. However, the author has always denied this information.

HAL 9000 is more than just part of the plot scenario. It is one of the central characters of the work. What makes this character memorable in the discussion of artificial intelligence is precisely the counterpoint between its extreme rational vision, in function of the mission and despite the crew as a whole, with the ability to interpret and even feel. We have, in the movie, HAL 9000 dialogues such as "I would not worry about it", or "I know my mind is going away... I feel".

But Isaac Asimov puts things in an even more realistic way. In his vision of the future, already in the 1970s, he saw notions of the Internet that we know today, and artificial intelligence in a way that approximates what we begin to experience. In one of his most acclaimed works, the collection of short stories I, Robot, Asimov discusses cybernetic intelligence and its framing in human society, even including theorization of the famous three laws of robotics:

- A robot cannot hurt a human or allow a human to suffer evil;
- Robots must obey human orders, except in cases where such orders conflict with the first law;
- A robot should protect its own existence as long as it does not conflict with the previous laws.

But Asimov did not just stick in the discussion of robotics, although this is the best-known facet of his work. The writer was one of the most unflinching futurologists in his work throughout the twentieth century and discussed, almost 50 years ago, dilemmas we have just begun to face as a society.

We have developed communication tools that have saved millions of lives for decades.

We were aware of technologies that would easily replace oil as an energy matrix, although this was not very interesting.

But our concern with our supposed opponents kept us inert for 30 or 40 years. Small "consolation prizes" were handed over from time to time to society as a whole.

By the late 1970s, we were practically the same way we were twenty years earlier. Until this was not enough anymore...

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The 1990s and 2000s brought a more entrepreneurial vision to the world. The quieter horizon, celebrated with the end of the Cold War, the fall of the Berlin Wall, the end of the Apartheid regime in South Africa and dozens of other movements of democratization and opening around the world – Russia, China, Eastern Europe, the Middle East, and even regimes like Cuba – allowed the vision of the future to become more practical. The fear of conflict and war, as well as the preparation for their ills, gave way to a constructive view.

The future was beginning to cease to be reactive. It was up to us to build the next steps, no longer based on the ruins and leftovers left by the actions of our ancestors, but especially guided by our own minds.

Unfortunately, lessons are always learned. The September 11 attacks in 2001, coupled with the crises that followed the demise of the real estate bubble in 2008 created an interesting consideration.

Progress and innovation are necessary, but it is also necessary to establish sustainable lines of growth and development.

The decade we live in has been like few in the history of mankind, such as automation, the transition from Industry 4.0 to the coming Industry 5.0, the brutal modification of social realities and work with Internet evolution. We make everyday life safer. "Today" is no longer a concern now, and this leaves us room for tomorrow's thinking, and at the speed of contemporary society, thinking is no longer enough. It's necessary to perform.

Vision, planning, execution, maintenance and repetition.

The stone path seems visible and attainable, and the lessons of a few centuries will now open a new step for humanity. Jovial impulse should join the method of the mature to create a future based on dreams and conquests, but solid, sustainable and firm, guided by reason.

Emotion and reason walk together

Since the early 1970s, the Space Age has experienced one setback. In the mid-1990s, when futurists preached that we would already be living in space or visiting other planets, our impetus beyond Earth was limited to scientific research in space stations or in new equipment that could maintain and extend what we knew about the universe and the stars.

The Moon once again became an unknown frontier, and the distant dream of visiting other planets, beginning with neighboring Mars, now seemed a goal limited to a few science fiction films.

With each new launch, we seemed to know more about the Universe, however always within the comfort of our armchairs, while robots and billions of dollars of equipment collected distant clues.

The excuse of the costs involved in space travel was almost fully absorbed by society. In a world without great wars, the vision of inner problems became clearer – man now wanted better health, education, fairer laws and norms and greater freedom in his daily life.

We became more socially evolved, but the turn of the last decade proved to be a reality: we lacked heroes, great journeys, objectives that would unite all humanity as a species.

Let's focus on the individual. Luckily, that was not enough for everyone.

The excuses of the high costs, the commercial unfeasibility, the absence of popular outcry, all this was not enough to repress the opportunities of some half-dozen visionaries.

And even after we conquered the dreamed comfort zone for which we fought for more than three generations, we were not yet satisfied. What it is gained remains, but we must go further.

Today's new heroes claim that we will be on Mars in 10 or 15 years. Perhaps we will go again to the Moon. Entrepreneurs for whom risks are part of life itself seem willing to make space a viable destination for travel agencies in shopping malls.

But the dream is not childish anymore. The vision is not romantic. One knows the dangers, challenges, and one also knows that the goal itself is only a point on the timeline, from which new goals and aims are opened, that they will not be easier than what we establish now.

The *Mars* series, recently aired on Netflix, is a veritable ode to a whole generation of new adventurers. Part documentary, and part novel, Mars brings a story that alternates scenes from 2016 and 2017, in which real people involved in this new step of humanity show where we are in the planning of our next great trip, and scenes from a novel beginning in 2033.

Today, just a story. Probably not very different from what we'll see on the news in 10 or 15 years. The message? The return of a society that set aside only the "viable", to invest time, money and even lives in the "possible".

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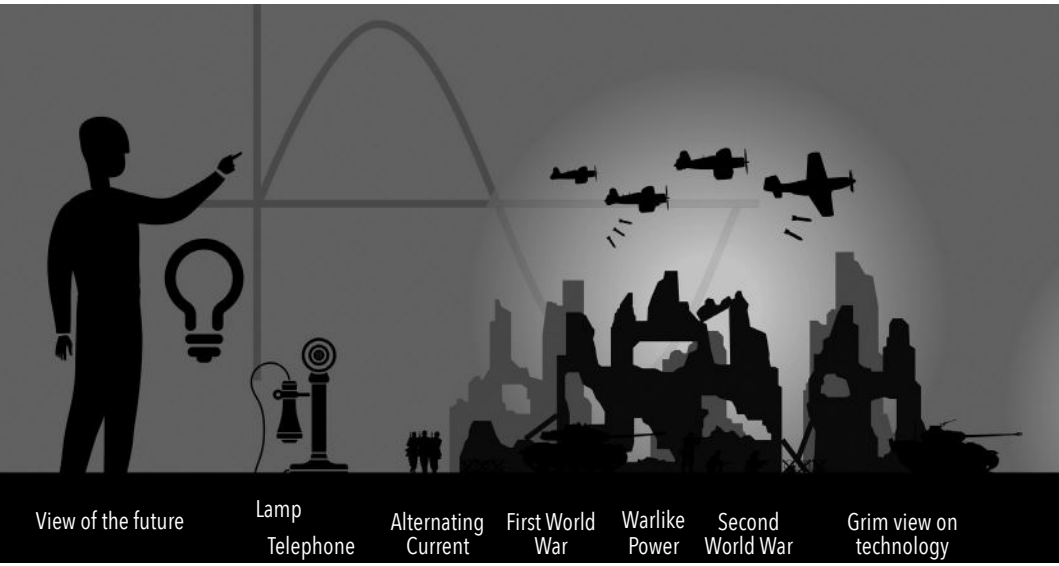
The new heroes and gurus are still on the rise. It will take a few years before they leave the news behind to achieve documentaries, film versions and the popular imagination. However, we have heroes who have already reached this point, from a reality not so far away.

Everyone knows and idolizes Steve Jobs. Idealizer of what, 30 years later, would be, if not the largest company in the world, at least the most beloved and remembered one, Jobs today represents the general example of what should be the vision of the future.

However, we may be a bit unfair. It is true that Jobs revolutionized society's way of seeing technology more than any other device or equipment, but if we go back to the early 1980s, we

will discover that there, at the height of the Cold War and the "futuristic" prison of the establishment, we have learned to think in a peculiar way.

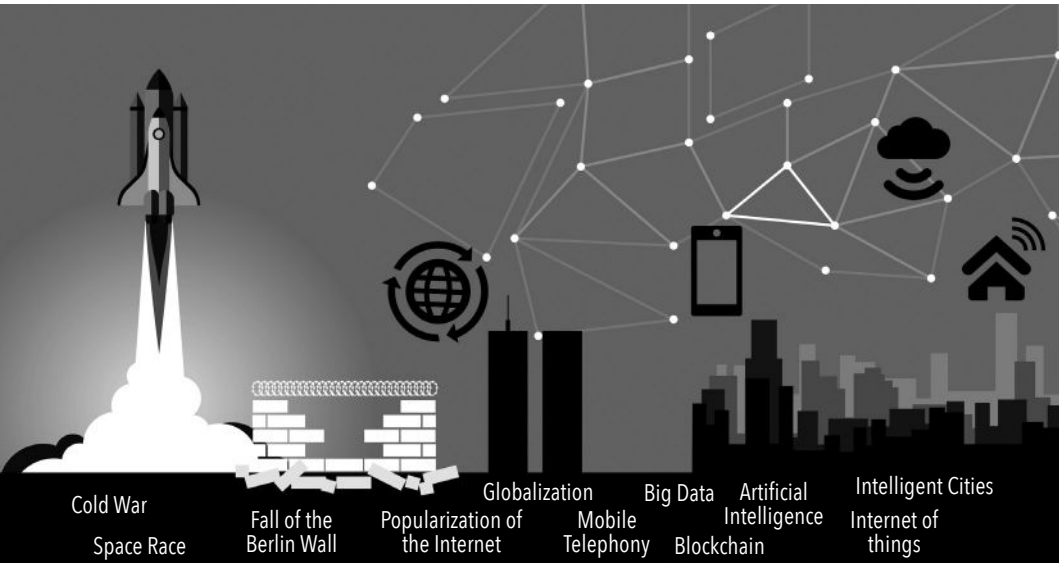
For the first time in almost a hundred years, we wanted our vision of the future to become something concrete and plausible – still in our present. Most people clearly see the rather neg-



ative points of this new mentality, such as consumerism, and this ends up "blurring" the truly fantastic aspect of this new way of looking forward.

The future today is executable. The future today is Smart and we can redesign it.

And this, my friends, changes everything!



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